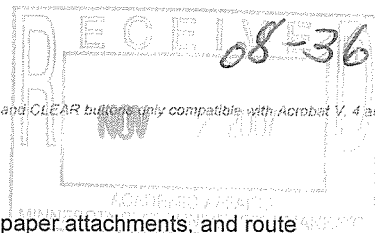




Minnesota State University, Mankato
Curriculum Proposal

HOLD and CLEAR buttons only compatible with Acrobat V. 4 and 5



Please type or select the requested information. Print completed forms, add appropriate paper attachments, and route through MSU's curricular process for recommendations and decisions.

College: <u>Science, Engineering and Technology</u>		(Check all that apply): <input checked="" type="checkbox"/> Undergraduate		Proposal # <u>70</u>
Department: <u>N/A</u>		<input type="checkbox"/> Graduate		Effective Date of Change:
Program: _____		CIP # _____		Academic Year <u>07-08</u>
Type of Change: <u>PROGRAM PROPOSALS</u>		(For Office Use Only)		
Proposed: <u>Change in Requirements-Course(s) Added</u>		Course Designator and Number	Number of Credits	
Title Current: <u>Bachelor of Science Teaching</u>		_____		
Title Proposed: <u>Bachelor of Science Teaching</u>		_____		
24-Char. Abbrev: _____		_____		

Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):
attached

Rationale or Justification for change:

The Department of Physics and Astronomy is making a change from a two-semester calculus based general physics sequence to a three semester general physics sequence. This sequence is an option within the BST- science core, and so the program must be modified to reflect this change. As the content of this sequence is unchanged, the impact on the program is small. Therefore the existing learning outcomes and assessment plan remains unchanged.

*****For General Education or Cultural Diversity Courses Only*****

General Education Course:		Cultural Diversity Course: (Please check one.)
GE Category #	GE Category Name (Maximum of 3 Categories)	<input type="checkbox"/> Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.) <input type="checkbox"/> Related (At least 25% devoted to the above topics or to a global perspective on topics related to African American, Asian, Hispanic, and Native American inhabitants of the United States.)
<u>N/A</u>	_____	
<u>N/A</u>	_____	
<u>N/A</u>	_____	

? For Writing Intensive Courses, attach a description of the kind and quantity of writing.
 ? For Upper Division Courses, include a description of the respects in which it is broad and general rather than narrow and specific, and so suitable as GE.

Attach paper copies of the following:
 a. Syllabus or course outline.
 b. Course's student learning outcomes associated with each GE competency or CD designation.
 c. List of strategies to be used to assess students' achievement of each GE competency or CD designation.

*****For New Courses*****

(Check all that apply):	Instructional Type: <u>Lecture</u>	Course will be offered:
<input type="checkbox"/> Course is an elective.	Grading Format: <input type="checkbox"/> Grade <input type="checkbox"/> P/N	<input type="checkbox"/> Fall Semester
<input type="checkbox"/> Course is required for program	_____	<input type="checkbox"/> Spring Semester
<input type="checkbox"/> Pre- or Co-requisites:	_____	<input type="checkbox"/> Summer Session
<input type="checkbox"/> Other courses are being changed or eliminated. (Explain.) _____		

Course content or title is similar to courses in other departments. (Attach copy of letter of agreement with other program(s) contacted. Indicate the nature of the discussions and/or resolution of differences or potential conflicts.)

- Attach paper copies of the following:
- Syllabus or course outline.
 - Course's student learning outcomes.
 - A list of resources required to offer and support this course.
 - A description of how teaching this course will affect department staffing.
 - If 400/500 level course, an explanation of added expectations of graduate students.



Minnesota State University, Mankato
Curriculum Proposal

Signature Page

Department			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>Mark A. Pichon</u>	<u>17 Oct. 2007</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Department Chair	Date
Comments:			
College Curriculum Committee			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>[Signature]</u>	<u>10/30/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Committee Chair	Date
Comments:			
College Dean			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>[Signature]</u>	<u>10/31/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Dean	Date
Comments:			
General Education Subcommittee			
<input type="checkbox"/> Recommended	(Category/ies _____)		
<input type="checkbox"/> Not Recommended	(Category/ies _____)	General Education Subcommittee Chair	Date
Comments:			
Undergraduate Curriculum and Academic Policy Committee			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>[Signature]</u>	<u>12/10/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	UCAP Faculty Chair	Date
Comments:			
Faculty Association Graduate Committee			
<input type="checkbox"/> Recommended			
<input type="checkbox"/> Not Recommended		Faculty Association Graduate Chair	Date
Comments:			
Graduate Dean			
<input type="checkbox"/> Recommended			
<input type="checkbox"/> Not Recommended		Graduate Dean	Date
Comments:			
Academic Affairs Council			
<input checked="" type="checkbox"/> Recommended	(Category/ies _____)	<u>Brenda Flannery</u>	<u>12/17/07</u>
<input type="checkbox"/> Not Recommended	(Category/ies _____)	Assistant Vice President	Date
Comments:			
Senior Vice President and Vice President for Academic Affairs			
<input checked="" type="checkbox"/> Approved	(Category/ies _____)	<u>[Signature]</u>	<u>12/18/07</u>
<input type="checkbox"/> Not Approved	(Category/ies _____)	Sr. Vice President / Vice Pres. Academic Affairs	Date
Comments:			

FOR ALL SCIENCE TEACHING PROGRAMS -- Present

Required General Education (3 credits)

HLTH 310 Drug Education

Required General Science Core (31 Credits)

AST 101 Introduction to Astronomy (3)

BIOL 105W General Biology I (4)

BIOL 106 General Biology II (4)

CHEM 201 General Chemistry I (5)

GEOL 121 Physical Geology (4)

GEOL 310 Earth and Space Systems (3)

PHYS 211 Principles of Physics I (4)*

PHYS 212 Principles of Physics II (4)*

* Physics 221 (5) and 222 (5) may substitute. The additional credit hours will reduce the number of credits in the advanced physics courses.

FOR ALL SCIENCE TEACHING PROGRAMS -- Proposed

Required General Education (3 credits)

HLTH 310 Drug Education

Required General Science Core (31 Credits)

AST 101 Introduction to Astronomy (3)

BIOL 105W General Biology I (4)

BIOL 106 General Biology II (4)

CHEM 201 General Chemistry I (5)

GEOL 121 Physical Geology (4)

GEOL 310 Earth and Space Systems (3)

PHYS 211 Principles of Physics I (4)*

PHYS 212 Principles of Physics II (4)*

* Physics 221 (4), 222 (3), 232 (1), 223 (3), and 233 (1) may substitute. The additional credit hours will reduce the number of credits in the advanced physics courses.

Approval from Science teaching faculty in all four specialty areas for this change has been obtained. Please see attached documentation.

Subject: RE: [Fwd: Science Teaching/3 sem physics proposal]

From: "Friend, Donald A" <donald.friend@mnsu.edu>

Date: Thu, 27 Sep 2007 15:02:28 -0500

To: "Brown, Thomas R" <thomas.brown@mnsu.edu>, "Adams, D Daryl" <d.adams@mnsu.edu>, "Pribyl, Jeffrey R" <jeffrey.pribyl@mnsu.edu>

CC: "Lavoie, Bethann" <bethann.lavoie@mnsu.edu>, "Bessler, William C" <william.bessler@mnsu.edu>, "Hoppie, Bryce William" <bryce.hoppie@mnsu.edu>, "Losh, Steven L" <steven.losh@mnsu.edu>, "Page, Scott M" <scott.page@mnsu.edu>, "Marg, Gregg A" <gregg.marg@mnsu.edu>, "Groh, Brian L" <brian.groh@mnsu.edu>, "Keen, Cecil" <cecil.keen@mnsu.edu>, "Pierce, James N" <james.pierce@mnsu.edu>, "Friend, Donald A" <donald.friend@mnsu.edu>

Tom,

First, I have cc'ed the other Science Teaching coordinators/advisors and their department chairs because it may impact their programs.

I believe I can speak for all three Earth Science majors: Earth Science, Earth Science-Geology Concentration and for Science Teaching: Earth Science.

To simply satisfy major requirements in any of the Earth Science based majors, including future High School Earth Science teachers, what you propose has no impact. They will all still be fine with Phys 211-212.

For our few students seeking Federal government employment as one or another kind of "scientist," e.g. meteorologist, hydrologist, soil scientist, or other physical or natural scientist, the requirement is " Six semester hours of physics, with at least one course that includes laboratory sessions.* And, "**There is a prerequisite or corequisite of calculus for course work in atmospheric dynamics and thermodynamics, physics, and differential equations. Calculus courses must be appropriate for a physical science major" (<http://www.opm.gov/qualifications/SEC-IV/B/GS1300/1340.htm>). Once again, what you propose should not impact our students seeking such jobs because both the two and three course sequence offer enough credit hours in two semesters to satisfy the federal requirements.

For Earth Science, thanks for thinking of these issues before you move forward.

Best,

Don

Donald A. Friend, Ph.D.
Professor and Chair
Director of Earth Science Programs

Department of Geography
Minnesota State University
7 Armstrong Hall
Mankato, MN 56001-6026
USA

507-389-2618 voice
507-389-2980 fax
don.friend@mnsu.edu

"I regard it as the foremost task of education to ensure the survival of these qualities: an enterprising curiosity, an undefeatable spirit, tenacity in pursuit, readiness for sensible self-denial and above all, compassion." (Kurt Hahn, founder of Outward Bound)

-----Original Message-----

From: Tom Brown [mailto:thomas.brown@mnsu.edu]
Sent: Thursday, September 27, 2007 12:30 PM
To: Adams, D Daryl; Friend, Donald A; Pribyl, Jeffrey R
Subject: [Fwd: Science Teaching/3 sem physics proposal]

Hi all,

Subject: RE: [Fwd: Science Teaching/3 sem physics proposal]
From: "Pribyl, Jeffrey R" <jeffrey.pribyl@mnsu.edu>
Date: Thu, 4 Oct 2007 08:26:52 -0500
To: "Brown, Thomas R" <thomas.brown@mnsu.edu>

Tom: The Department of Chemistry and Geology met on Tuesday, October 2, 2007 and discussed this change. The department approved supporting this change for the science teaching majors.

Jeffrey R. Pribyl

Jeffrey R. Pribyl
Professor
Chemistry and Geology
Minnesota State University, Mankato
(507) 389-6024

-----Original Message-----

From: Tom Brown [mailto:thomas.brown@mnsu.edu]
Sent: Thursday, September 27, 2007 12:30 PM
To: Adams, D Daryl; Friend, Donald A; Pribyl, Jeffrey R
Subject: [Fwd: Science Teaching/3 sem physics proposal]

Hi all,

Physics is making a change in the offering for calculus-based general physics; from a two to a three semester sequence. This change is not likely to effect very many science teaching majors outside of physics, as most of them take the 211, 212 algebra-based sequence to fulfill the requirements for the general science core. However the bulletin states that 221 and 222 (our current two semester sequence of calculus based physics) may be used in place of 211 and 212. The change I propose is to simply allow the new calc-based sequence (as listed below in an email from Mark Pickar) this same role. I'd like to hear what you think. Please read the copy of Mark's email to me and note that he needs a statement from each of you indicating the feasibility of incorporating this change into the science teaching program.

Thanks so much

Tom

Dear Tom,

I am addressing this memo to you, as you are listed as the physics advisor for the Science Teaching Program. Please forward this memo to the other coordinators of this program, along with any additional comments you may wish to include.

My department is submitting a proposal to shift from a two semester calculus-based physics sequence [5cr + 5cr] to a three semester calculus-based physics sequence [4cr + (3+1)cr + (3+1)cr]. The existing courses PHYS 221 and PHYS 222 are listed as allowable substitutions in the General Science Core. These courses are also referenced under Electives for the Physics BS Teaching degree.

I will need a statement for each of your programs as to whether the proposed changes can be accomodated, and if they can, what they will include as requirements or accepted options.

In the new proposal we have 5 courses that constitute the 3 semester calculus-based sequence:

- PHYS 221 (4cr) Mechanics (Lecture+Lab)
- PHYS 222 (3cr) Electricity and magnetism (Lecture)
- PHYS 232 (1cr) Electricity and magnetism lab (Lab)
- PHYS 223 (3cr) Thermo, waves, optics, modern physics (Lecture)
- PHYS 233 (1cr) Thermo, waves, optics, mod phys lab (Lab)

I have attached descriptions of each of these courses to this email for you and your fellow coordinators to examine. PHYS 221 is the gateway course, and is the physics prerequisite for both PHYS 222 and PHYS 223.

I will be most happy to answer any questions you might have. I hope that these changes make our physics offerings fit better into your programs.

Subject: RE: Science Teaching/ 3 sem proposal
From: "Marg, Gregg A" <gregg.marg@mnsu.edu>
Date: Tue, 9 Oct 2007 15:36:25 -0500
To: "Brown, Thomas R" <thomas.brown@mnsu.edu>

Hi Tom,

Since the calc-based sequence is just an option, I don't see any problem in proceeding as you suggest. This shouldn't even require a program proposal since the option is part of the descriptive text. I'll just have to remember to change the text when it is up for revision. I'll send a note to Mark too.

Gregg

-----Original Message-----
From: Tom Brown [mailto:thomas.brown@mnsu.edu]
Sent: Tuesday, October 09, 2007 12:08 PM
To: Marg, Gregg A
Subject: Science Teaching/ 3 sem proposal

Hi Gregg,

As you know....

Physics is making a change in the offering for calculus-based general physics; from a two to a three semester sequence. This change is not likely to effect very many science teaching majors outside of physics, as most of them take the 211, 212 algebra-based sequence to fulfill the requirements for the general science core. However the bulletin states that 221 and 222 (our current two semester sequence of calculus based physics) may be used in place of 211 and 212. The change I propose is to simply allow the new calc-based sequence (as listed below in an email from Mark Pickar) this same role. I'd like to hear what you think. Please read the copy of Mark's email to me and note that he needs a statement from each of you indicating the feasibility of incorporating this change into the science teaching program.

Could you give us a go ahead on behalf of the Life Science teaching majors? With Beth out of the loop we thought it would be best to approach you!

Thanks
Tom

Re: Science Teaching/3 sem physics

Physics

Subject: Re: Science Teaching/3 sem physics
From: Tom Brown <thomas.brown@mnsu.edu>
Date: Tue, 09 Oct 2007 16:11:33 -0500
To: "Pickar, Mark A" <mark.pickar@mnsu.edu>

Mark,

The BS Teaching program can accommodate the proposed change to a three semester general physics sequence. Because the content of the sequence is unchanged, all state standards and competencies will still be met. The effect will be an addition of two credits to the degree, which does not push it over the credit limit.
Tom

Learning Outcomes:

The learning outcomes for the 5-8 general science core are established by the Minnesota Board of Teaching Science 5-8 Licensure standards and competencies. The standards matrix for the 5-8 science core can be viewed at:
<http://ed.mnsu.edu/professionaled/matrices/subject.html>

Assessment Plan

The program evaluation system for the College of Education will serve as the primary internal process to review and update the quality of these services. That plan, specified for as part of the MnBOT approved plan for Standard 2 from the NCATE Accreditation, is noted below. It is then followed by the description of the approved Transition steps for the DCD Program of Study, as noted in the Undergraduate Bulletin Description for this major (COE approved, December 2004).

Data Collection, Analysis, and Evaluation

Unit-level data from several sources is regularly aggregated, analyzed by program, and disseminated for faculty and deans. Performance data on clinical experiences and student teaching for initial licensure candidates is compiled in an annual internal report and distributed. Similarly, data on candidates' performance on Praxis examinations is analyzed and disseminated. Finally, responses to follow-up surveys are analyzed and disseminated. Department-level data is compiled and analyzed for annual program assessment reports.

Currently, the unit is making a transition from a department-maintained data management system to unit-level Professional Education Database. The Professional Education Database, under development since fall 2002, and in production in fall 2004 with version 2.0, enables the unit to manage and monitor assessment data for students in both initial and advanced programs. The database is designed to incorporate data from the various sources at the university and unit into one integrated system to track candidates' progress as well as reveal a program's strengths and weaknesses. The Professional Education Database draws information directly from the MSU student records system (ISRS) so that candidate information is up to date. Beginning with tracking the clinical experience data for undergraduate programs, the database incorporated other types of information as it was developed. Performance data are being collected, as shown in Standard 1, and are being used to make decisions about candidates at the four transition points for initial and advanced programs. With the Professional Education Database in full production, faculty are able to electronically input assessment data related to clinical experiences and core assessments. Faculty will be entering data directly in fall 2004 for the first time. The database allows queries to be made at the unit, program, and course levels. This access to data about trends will guide faculty as they strive to improve programs. The table below shows the sources of data, who they are collected from, and whether they are part of the database. These sources of data are regularly reviewed and used to make decisions about the functioning of unit and program improvement.

Reports of unit-wide assessments including data related to candidate testing and student teaching are distributed to unit faculty and deans as well as the Office of Academic Affairs. In addition to dissemination among unit faculty, departments, and deans, several advisory groups review the data and make recommendations. Aggregate data is reported by program to facilitate decision-making.

The Professional Education Assessment Committee meets to examine unit data at both initial and advanced levels and makes recommendations to improve assessments. These assessments include student teaching and clinical experience evaluations, dispositions assessments, Praxis examinations, follow-up surveys of graduates and employers, and program level core assessment rubrics.

The Professional Education Advisory Council receives information about assessments that reveals patterns of candidate performance. Based on this assessment information, the council recommends ways to better meet the needs of schools and learners.

The College of Education Student Advisory Council provides feedback to the student relations coordinator, Dean, and departments.

Changes to programs within courses or emphases within programs can be acted upon at the department level without formal university approval. Unit level changes related to assessments, clinical experiences, and admission and retention policies involve consultation with

advisory groups, department chairs, unit faculty, and the Dean. The advisory groups include P-12 partners, faculty representatives, and candidates. The curriculum change process is initiated by department faculty, with proposed changes receiving approval first at the department level. Curriculum proposals then go to the college for approval by a college curriculum committee and the dean. From the college level, proposals move to the university level where they are simultaneously acted upon by faculty representatives from each college on the University Curriculum and Policy Committee and the Vice President of Academic Affairs. When faculty and administration decisions differ, the issue is resolved during Sub-Meet and Confer. Program changes and new programs must also be approved by the Office of the Chancellor of Minnesota State Colleges and Universities and the Board of Trustees. For a detailed description of the curriculum process, go to <http://www.mnsu.edu/acadaf/html/currformsprocesses.htm>.

MSU requires that every program submit an annual assessment report for review by Academic Affairs as part of the Higher Learning Commission process. The report, based on a plan each program has on file as part of the program review process, lists student outcomes and assessments. Results of assessments, analysis identifying strengths and weaknesses, and resulting changes to improve programs are components of the report. Each report is rated and the feedback returned to the dean and departments.